DTSC Responses to Public Comments
Site-Wide Groundwater Remedial Investigation Report
Santa Susana Field Laboratory
Ventura County, California

	Received	From	Comment	Response
1	09/01/11 Email	Christina Walsh	*To begin with, I do not agree with the conclusion that the groundwater is not moving from the site. I believe the migration as evidenced in the northeast beyond the SSFL boundaries demonstrates that the contaminants have travelled further than estimated. While the rock matrix may contain contaminants, there is nothing to keep the contaminants from continuing to move. The number of years of rocket testing operations, coupled with the hundreds of thousands of gallons of estimated release of TCE to the groundwater zones below the SSFL site, further demonstrates that the conclusion that contaminants are not moving, is flawed at best.*	The objectives of the Remedial Investigation (RI) are: to define the nature and extent of contamination; to determine the rate of contaminant migration; and to collect adequate data to support risk assessment and evaluation of remedial alternatives. The concern presented here is directly related to meeting these objectives which DTSC agrees are not adequately met.
			In addition, the steep topography surrounding the site, with drastic drops in elevation in all directions make it further unlikely that migration of these contaminants has somehow been prevented by being contained in the rock matrix. The hydraulic pressure would continue downward, thereby competing with any perceived "cone of depression" that may have existed due to prior groundwater pumping efforts. Considering that the pumping efforts that were stated to have assisted in this depression that could keep contaminants from migrating outward from the site, was actually turned off in early 2000s, I believe that this change in hydraulic pressure has long since recovered. Given that presentations of pumping efforts currently ongoing (associated with WS9A seep VOC contamination) as an effective way to prevent contaminants from migrating off site, it should be considered that turning such an effort off, nearly a decade ago, would have a reverse effect as demonstrated by the rising saturation of shallow zones containing contaminated soils that may create a new migration pathway into contaminating the groundwater below the site.	Comment noted.
			(CONTINUED)While I appreciate the continued and extensive work that has occurred since 2008 at the site, I also have concerns that a presumption of "clean" still remains. During the presentations of the current three-dimensional understanding of the plume leaving the site to the northeast, there was a gap in the plume where indeed there was no well. So the presumption was that the spatial area between the two areas of contamination where no contamination was known, it was shown as "not being contaminated". When clarified, it was then understood that the space between those two points contained no well, and therefore, no sampling data to confirm or deny the potential presence of TCE. Instead of presenting this information as a data gap, it was presented as an area assumed to be clean, when in fact, it should be assumed to be contiguous.	This will be addressed as a part of the data gap analysis process. Large areas between the defined plumes and between release locations within the plumes have no data. The Groundwater Remedial Investigation Report (RI) report states that “more than 350 piezometers and wells are monitored within and surrounding SSFL” but given the number and size of the releases at the site, this is not a large number of wells. For example, the area between the plume in the northeast (i.e. IEL, APTF, Bowl areas, etc.) and the plume encompassing the Alfa and Bravo Test stands (among other sources areas) is over 170 acres with a single well (RD-47) providing control. DTSC cannot accept this level of resolution in the groundwater data at the site. Individual plumes and release locations should be sufficiently defined so that remediation alternatives can be assessed. The size of the plume, the range of concentrations, and the contaminants present are necessary information to evaluate any remedial alternative.
			I also do not believe that all natural and industrial water-bodies across the site have been adequately identified within the groundwater model. Since each of these areas serve as potential areas for accumulation from sediment collection and percolation downgradient into both shallow and formation groundwater zones, they should each be considered potential source zones. Examples of these areas include the multiple pond areas at FSDF, CTL III, STL IV, SPTF, Delta skim ponds as well as several unlined "settlement areas" as identified by the EPA investigation of Area IV that lead to and from Silvernale and R2 pond(s). Since these areas showed elevated results of radiological constituents (specific to the silvernale pond settlement areas) consistent with the operations upstream from these points (including SRE pump system to prevent offsite migration to the north to Brandeis camp property.	DTSC agrees that each and every ponds needs to be identified and its effects addressed. The communication between the surface impoundments and ponds with the underlying groundwater is addressed in the RI report and the groundwater model but as the model is refined, the past, current, and future effects of these surface bodies will be further evaluated.

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2	09/01/11 Email	Christina Walsh	*Presence of strontium in well RD98 as well as the tritium identified in wells RD88, RD90, RD93, and RD95 should be reexamined considering the new lower background for Strontium, Cesium, as as well as the entire draft lookup table, and an addendum that identifies the number of impacted wells using the new lower screening levels.*	The presence of both strontium and tritium in groundwater will be reevaluated as additional work is completed at the site and additional data is collected.
3	09/01/11 Email	Christina Walsh	*Transport of chemicals in bedrock groundwater at various depths has been strongly characterized, though this does not adequately identify the frequency of vertical cracks, seeps, fractures, etc. as this is limited by the number of coreholes and wells drilled.*	The orientation and frequency of the fractures and joints varies across the site and need further assessment and evaluation as they have a significant effect on groundwater flow and contaminant movement.
4	09/01/11 Email	Christina Walsh	*"...These data provide compelling and conclusive evidence of the strong attenuation effect of matrix diffusion on contaminant transport in the Chatsworth formation at SSFL"* *This statement is not adequately supported in that matrix diffusion only accounts for a small percentage of the rock to be spatially available for contaminant storage. Further, the distance represented does not adequately explain the distance of contaminant transport from source zone as identified, to the northeast off-site findings.* *The estimated sources for these distant TCE hits are also not adequately discussed, as this is a very important part of the nature and extent understanding. Because of the steep downgradient topography going further outward from the site, it is possible that vertical fracture systems exist at depth, since no further sampling outward has occurred to demonstrate otherwise. For this reason, it is important that potential downward migration be considered, instead of denied at each possible step of an investigative decision tree.* *Mean porewater concentrations of 2544ug/L, detected in 1295 of 1655 samples does not necessarily only support strong attenuation, since concentration levels vary widely, and therefore believe this is not necessarily definitive in supporting the concept of strong attenuation effect of matrix diffusion on contaminant transport. Further, the extraordinary distances concentrations have migrated along fault lines contradicts this point.*	DTSC concurs with the points raised in this comment and will address these issues during the groundwater data gap investigation and analysis.
5	09/01/11 Email	Christina Walsh	*I appreciate the data gaps identified in the report, but am concerned at the level of missing information for the purpose of key decision points: I am deeply concerned about the many areas that continue to lack data where there should be a presumption for sampling. These include several primary source areas including CTL V, Area I Burnpit, SRE, and ELV sites.* *I am very concerned about the data gaps concerning hydraulic testing of the related faults including the burro flats and fsdf structure faults and support the further investigation in hydraulic conductivity for all existing faults across the site, and hope that an effort to better understand the conductivity of the burro flats fault [sic] as it moves to the east toward the chatsworth reservoir [sic] also be further evaluated.* *I support further investigation using target analytes to better confirm vertical and lateral extent.*	DTSC has requested (per our comments on the RI Report dated December 20, 2011) that the general objectives of the RI be clarified in the report to state that "determining the rate of contaminant migration" be added to the stated objectives in order to meet all objectives of the investigation. The RI Report and its accompanying comments can be found at *http://www.dtsc.ca.gov/SiteCleanup/Santa_Susana_Field_Lab/index.cfm*

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6	09/01/11 Email	Christina Walsh	*I am concerned about the statement related to seeps (ES-4) "to confirm the absence of impacts to off-site receptors" Considering fifty years of operational history and the thousand foot drop to the surrounding communities on all sides of the site, I find it limiting and presumptuous to state that it is even possible to "confirm the absence to off site receptors" when indeed the sampling system is inadequate to do so, to make such statements, and further, considering the many concerned residents on all sides of the site who believe their illnesses are related to the site. Unless you are willing and able to sample in all downgradient directions and do so extensively, this statement should be withdrawn from the report.*	DTSC would agree that sufficient data must be collected to assess any potential impacts or risks to off-site receptors.
7	09/01/11 Email	Christina Walsh	*While groundwater use and/or deed restrictions will likely be necessary, please be clear in stating that California has a non-degradation policy, and therefore does not allow for deed restriction as an acceptable or adequate resolution, since a serious water resource has been eliminated. For this reason, I believe this policy should be reiterated throughout the report wherever statements related to use restrictions are discussed.*	Deed restrictions are administrative controls that can be used as part of a final remedy for groundwater. However, it should be noted that the site is in the Remedial Investigation RI phase and a complete evaluation of remedial alternatives can only be completed once the RI process is completed. When evaluating remedial alternatives all appropriate requirements will be considered.
8	09/01/11 Email	Christina Walsh	*ES-5 - Serious concerns related to the Conclusions on potential off-site exposures to site-related contaminants: "Due to the observed concentrations in plumes, the migration distance required, the strength of attenuation and retardation in the bedrock, and the mass flux available for transport in contaminant plumes at SSFL, it is not scientifically plausible for contaminants to migrate to wells within outlying communities at concentrations causing human and ecological impacts"* *This statement is of extreme concern. There is NOT been enough sampling to demonstrate this point off-site and to state that it is not scientifically plausible when corehole sampling has gone down well over 1000 feet at depth where the sampling team was UNABLE to find clean at the bottom of the plume. It is absolutely outrageous to make such a statement when indeed contaminants have been observed in groundwater in Simi Valley. The difference being that the RPs have insisted that the findings could not be related, but have not been able to scientifically prove that point. Concerning the "expert team" responsible for this report where the scope of data did not include the contaminant findings in simi [sic] groundwater (where residents drink blended groundwater)*	DTSC agrees with the issues raised in this comment and will address these points during the development of future phases of work.
9	09/01/11 Email	Christina Walsh	*In fact, in some cases, it has been observed through corehole testing that "pure product" (i.e.100% TCE) has been found at depth suggesting that potential pathways may exist at depth that would show TCE in groundwater at distance according to the model of transport presented. To say that concentrations at these high levels (the highest possible) could not provide for mass flux at depth has not be substantiated.*	DTSC believes that sufficient field data must be collected. Addtitional data will be collected in subsequent phases of work that are being developed.
10	09/01/11 Email	Christina Walsh	*Further, given that assumptions made within the presentation of the groundwater conditions, included showing assumed clean areas due to the absence of contaminant result findings, when indeed, the gap was that there were no findings whatsoever within the gap because no wells had been drilled. This can NOT be considered supportive evidence of non-contaminated soils, yet that is how is was presented to the public. This shows a pre-disposition to an assumption that where no data exists, there must be good reason, therefore no contaminants are likely. This is a flawed argument, and therefore should be withdrawn from the conclusion portion of the RI report.*	Source areas will be evaluated by collecting data in a step-out and step-down process to assess the nature and extent of contamination. As part of this process full assessment of the groundwater plumes will be completed to support remedial decisions.

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11	09/01/11 Email	Christina Walsh	*Additionally, presentations made also stated that the degradation process goes from most toxic to least toxic, supporting the argument that monitored attenuation was recommended. Indeed, vinyl chloride is on the far right in the degradation process, and is indeed more toxic than TCE and Cis 1.2 DCE, etc. I requested that this be corrected during the meetings and reiterate that request here.*	Further work is needed to assess the impacts, if any, of biotic and abiotic degradation of the TCE.
12	09/01/11 Email	Christina Walsh	*I am also extremely concerned about the last point made here, that available data indicates that there are no known or projected impacts to human or ecological receptors from impacted groundwater originating beneath SSFL. This is an untrue statement, as there are several proposed new home developments that have not been adequately investigated for these potential impacts. These include hundreds of potential new homes to be built directly adjacent to the site, and this information is known to all responsible parties. The fact that no proper investigation of these pathways has been completed, can not and should not be used to inform the offsite communities that no known potentials exist when indeed they do. Several real estate transactions have occurred as a direct result of this potential fear including but not limited to the transfer of ownership of land directly abutting the SSFL impacted properties, now identified as the Northern Buffer Zones where evidence of contaminants including 80 drums in a ravine have been observed. To make a conclusion to say there are no known potential receptors is extremely irresponsible, and again, I ask that this statement be withdrawn from the draft report.*	This statement referred to current human or ecological exposure to groundwater contaminants from the site. Future potential impacts to human or ecological receptors will be evaluated as the investigation continues and conditions change in the surrounding areas.
13	09/01/11 Email	Christina Walsh	*I believe that the analysis of available site data does not support the point related to flow paths. The fact that contaminants are present at greater distances at the northeast, contradicts that conclusions drawn here. Further, since it is stated that the faults have not been adequately researched, and contaminant transport seems to follow the Sheer [sic] Zone fault, it seems that supported conclusions drawn, do not include primary concepts that are missing according to the authors. Without adequate consideration of what roles these faults play in the process, it is inappropriate to make such conclusions.*	DTSC agrees that additional investigation needs to be done regarding the study of the faults and how they impact contaminant migration in groundwater beneath SSFL. DTSC has noted this in its comments on the Groundwater Remedial Investigation Report by requesting that "determining the rate of contaminant migration" be added to the stated objectives.
14	09/01/11 Email	Christina Walsh	*Since not all source zones have been adequately identified, and estimated fate and transport distances range from hundreds to thousands of feet, no assumptions limiting that distance can accurately be made, especially considering the extreme change in topography immediately beyond the property line to the north, south, east and west. If surface water cannot extend laterally without significant drops in elevation (gravity), it must then also be assumed that subsurface material transport must also drop with that same expected drop in elevation. According to local hydrologists concerned with the groundwater issues, the difference in preferential pathways of water (including groundwater migration and transport), can still not adequately be quantified without all vertical and horizontal gaps, cracks, faults adequately identified. This is also confirmed as a data gap by the report authors here. WIthout this key piece of information, the conclusions drawn here contain assumptions that can easily modify the conclusion if these assumptions are modified to consider different potential migration pathways. Put simply, since these faults may act as contaminant transport accelerators, or as mechanisms that slow migration, a single assumption used in the decision model applied here, is inappropriate and sends an inaccurate message to the public.*	Comment noted.

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15	09/01/11 Email	Christina Walsh	*The conclusion that all contaminants remain within the sandstone matrix is not adequately supported. While it is possible to assume that much or most remains, it is not possible to quantify the potential that has run off the site over such a long history, and to assume nothing has run downhill during that entire duration of the operational lifespan of the site is short-sighted and not scientifically supported, considering the number of unknowns, including quantities of chemicals and radionuclides that may have been released during that duration.*	DTSC has requested that additional characterization be done to fully identify the scope of potential contaminant migration. This will be done for both chemicals and radionuclides.
16	09/01/11 Email	Christina Walsh	*While transport of chemicals and radionuclides by groundwater flow in the fracture network is identifiable and detectable using monitoring wells and/or seeps, it has recently been identified through the expert team that the sampling process for seeps has been historically inadequate, in that it would likely volatilize the results prior to being captured. Therefore, historical seep results are likely lower than what was actually present prior to hitting oxygen. I am very appreciative of this finding and of the new "backpack" sampling wells installed in the WS9a and downgradient seep area, but I also do not believe that all seeps have been identified because of the steep natural topography and limited access to many areas due to the rugged terrain. This is not to say that a strong effort has not been made, but rather, to point out that data results from seeps surrounding the site, are questionable at best, for this reason. Given these uncertainties, I find the conclusions drawn here to be inappropriate and premature.*	DTSC agrees with the concerns regarding the volatization and loss of certain contaminants as water emerges from springs and is sampled. In regards to idenitifying seeps/springs, DTSC believes that the vast majority of actual and potential seep and spring locations have been identified. However, supplemental work is being done to identify additional off-site seeps and springs for sampling.
17	09/01/11 Email	Christina Walsh	*"Nearly all groundwater contaminant mass resides in the low permeability rock matrix blocks between the fractures local to where the contaminants entered the ground" This conclusion is also unsupported and unquantifiable.*	This statement in the report is general in nature. Additional work is needed **(to)** further evaluate the implications of this statement to SSFL.
18	09/01/11 Email	Christina Walsh	*Given the extreme depths where contaminants at extremely high concentrations have been observed, and the fractured matrix that exists, there is no reason to believe that "all" contaminants were trapped considering the extent of both vertical and horizontal fracturing within the sandstone and the extreme elevation difference between the surrounding communities and the site itself. I also consider the reluctance to sample at distance because of the presumption that it "cannot be connected" another reason these conclusions are not supported.*	The Responsible Parties are required to define the nature and extent of contamination at the Site. The Site Conceptual Model document states "natural processes over past decades have caused strong attenuation of the maximum plume concentrations and retardation of plume front migration, and are responsible for the lack of reported impacts to off-site receptors. These processes will continue to govern the bedrock contaminants in the future. The matrix-diffusion SCM can be used to reliably forecast the expectation of no off-site impacts in the future." Without complete characterization of the site, it is not possible to verify if this statement is valid throughout the site or even portions of the site. The RI objectives are: define the nature and extent of contamination; determine the rate of contaminant migration, and collect adequate data to support risk assessment and evaluation of remedial alternatives.
19	09/01/11 Email	Christina Walsh	*Contaminant plume maps are acknowledged to be a very simplified visual depiction of potential and general extent and is limited to the number of holes in the ground. Statisically speaking, not enough samples are consistent in results to accurately identify flow patterns and therefore these conclusions are premature and are not substantiated through supporting evidence.*	The Responsible Parties are required to adequately define the nature and extent of contamination and the rate of contaminant migration at the site. Additional data will be collected as necessary to address any data gaps. A statisical approach to collecting samples (i.e. using a grid approach) would not be utilized for the groundwater investigation. Instead, information about source zones and groundwater flow will be utilized and evaluated to determine where data gaps exist.
20	09/01/11 Email	Christina Walsh	*While institutional controls such as deed restrictions for drinking water are prudent, they are not sufficient considering the non-degradation policy of the State of California, and the extremely precious commodity of drinking water resources cannot be dismissed simply through these controls. Effort to recover this resource must be made.*	Comment noted.
21	09/01/11 Email	Christina Walsh	*As standard risk assessment confirms, the potential impacts to receptors are above acceptable limits, and not enough emphasis has been made on methods to recover and mitigate this issue.*	Remedial alternatives will be presented in the Feasibility Study that will address impacts to receptors.

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22	09/01/11 Email	Christina Walsh	*I am extremely concerned with the statement that it is not scientifically plausible for contaminants to migrate to wells in outlying communities when indeed impacted wells on formerly offsite areas resulted in land transfer and litigation settlement. For this reason, I believe it is appropriate for this statement of conclusion to be removed from the report.*	DTSC agrees that additional data should be collected to support the hypothesis that contaminants will not significantly migrate to well in outlying communities.
23	09/01/11 Email	Christina Walsh	*The absence of any discussion about the rise in shallow groundwater within the conclusions of this report is disappointing. This points to a potential increase in spatial groundwater impacted extent that is not addressed.*	Perched groundwater is addressed in the Groundwater Remedial Investigation Report. DTSC concurs with the concern raised in this comment as indicated in our comments on the Groundwater Remedial Investigation Reportindicating that there is insufficient characterization of release locations to determine if these areas can and/or should be remediated. In general, the nature and extent of groundwater contamination from individual release locations/source areas have not been completed to allow for an adequate assessment of remedial alternatives.
24	09/01/11 Email	Christina Walsh	*6.3.4.1 Indicated by the distribution of hydraulic heads and water quality While the water level offset does signify a potential partial barrier, it is only a barrier to water crossing the fault area, not to moving along the faulted area which it seems to have accelerated, considering the distance of [sic] off site contaminants in this area.*	Groundwater movement parallel to faults behaving as a barrier is expected and will be further evaluated.
25	09/01/11 Email	Christina Walsh	*"recent data" is described as that from July 2007 to June 2008 so only one years worth of data is being considered recent and potentially skews the potential "shape files" that consider screening level exceedences from recent vs. "historical" data 7.3.5.1 extent in groundwater does not adequately consider all potential source areas since many areas of water collection through land depressions or ponds have not been identified despite historical storage of contaminated water.*	All groundwater data is considered when characterizing the nature and extent of contaminants. More recent data, when available, is generally more appropriate for risk assessment calculations as they are more representative of current conditions.
26	09/01/11 Email	Christina Walsh	*7.4.3 Within the discussion of radionuclide impacts to groundwater, it is disappointing that the impact to groundwater with seepage in and out of vaulted facilities is not discussed, making this another potential source that is not adequately considered.*	All potential release locations and their potential impact on groundwater will be evaluated.
27	09/01/11 Email	Christina Walsh	*7.4.5 Gross Beta Activity in groundwater* *The assessment described here related to potential groundwater gross beta activity is inadequate. It does not clearly describe the pumping activities that went on, from the SRE pond pumping back water to Silvernale Pond, nor does it describe the release events related to breaks in the pipe and over flows due to rainfall during heavy rainy seasons. Given that this pumping system was only recently acknowledged through EPAs research in the Area IV investigation, wells have not been adequately placed to address this issue. A list of wells added at the request of EPA should be considered here, and additional assessment of this issue given this new information is appropriate. Additionally, due to historical filtration of samples, it is understood that concentrations were lowered through this process and therefore, historical data is suspect.*	The operation and activities related to the Sodium reactor Experiment (SRE) pond will be evaluated.
28	09/01/11 Email	Christina Walsh	*7.4.8 Tritium in Groundwater (site related)* *Statements made here that tritium results at SSFL are from atmospheric testing and not site-related, do not adequately consider the history of tritium use through neutron bombardment in the two Van De Graaf Accelerators discussed in the Factual Perspective. It is inappropriate that this information is not considered here, and further supports the evidence that the authors have a predisposed lean toward non-site related activities despite the detailed history at the site. Either that detailed history of historical use at the site was not provided to the authors, or they failed to consider its level of importance.*	The tritium plume and potential sources will be further evaluated.

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29	09/01/11 Email	Christina Walsh	*It should be emphasized that EPA had very different conclusions in their view of the groundwater data and indeed felt that there was an inadequate network of existing wells to properly characterize groundwater, and that information including the wells they have since requested be installed, be included here as a referenced addendum in the final draft Groundwater RI*	The results from the work being conducted in Area IV by EPA will be incorporated into the Sitewide Groundwater RI.
30	09/01/11 Email	Christina Walsh	*7.5 Summary: Also missing from consideration in the groundwater RI is the radiological investigation including the Technical Memorandums submitted for the Area IV and Northern Bufferzone portions of the site.*	The results from the work being conducted in Area IV by EPA will be incorporated into the Sitewide Groundwater RI activities.
31	09/01/11 Email	Christina Walsh	*7.5.1 Bedrock and Vadose Zone: the rising saturation of soils in the shallow zones due to the turning off of groundwater pump systems (nearly ten years ago), is not adequately acknowledged or discussed in the report. This may potentially increase the relative size (acreage as referenced in 7.5.2) of the VOC plumes and cause further migration of otherwise stable contaminants in soil.*	Predicting any changes of the extent of the VOCs plumes due to time or changing water levels will need to be sufficiently evaluated and modeled.
			Further, characterization at depth, as presented, does not address the issue of high concentrations at c6 where they were not able to get through the contaminated zone to define its bottom. This is of key importance and is seemingly omitted from the key findings and conclusions.	The vertical extent of contamination at the site is not adequately assessed and will need to be addressed and evaluated.
32	09/01/11 Email	Christina Walsh	*7.6 The Burro Flats and Coca Faults transect the area identified as requiring additional sampling, and is also an area of some of the earliest testing. This fault extends through Dayton Canyon to the Chatsworth Reservoir and should be characterized as such here.*	If the data collected indicates a contaminant pathway that extends offsite, DTSC will direct the RPs to extend the investigation area and collect all necessary data to assess the pathway.
33	09/01/11 Email	Christina Walsh	*The former pond at the SRE RI site and its relationship to the Silvernale Pond in Area III through the pump-back system installed in the late 50s should be recommended for further characterization using similar analyses for comparison given this process was installed due to the potential impacts to the Brandeis property below and the Northern bufferzone, but it should also be acknowledged that this system then causes the same list of constituents to be potentially present at Silvernale as well as through the unlined portions of that water runoff path, and how this may alter the groundwater conditions below these areas through percolation into the soils below.*	The entire surface water pathway of Silvernale Pond will be evaluated and tested for any chemicals that were used in areas within its watershed including the pump-back system from the SRE pond.
34	09/01/11 Email	Christina Walsh	*8.0 Transport and Fate: This section does not adequately address the leakage in and out of deep vaulted facilities in Area IV that were built below the groundwater saturation level. This includes buildings 10, 24, 59, 56 (excavation), and potentially also Bldg 55, RMHF and hotlab facilities. The potential role this plays on fate and transport of contaminants is not adequately addressed or considered.*	DTSC commented on the Groudnwater Remedial Investigation Report stating, "In general, the nature and extent of groundwater contamination from individual release locations/source areas have not been completed to allow for an adequate assessment of remedial alternatives." This issue should be addressed as additional assessment/S of the individual release locations is completed.
35	09/01/11 Email	Christina Walsh	*8.5.2.1 is not adequately substantiated through the data supported.*	DTSC assumes this comment refers to the statement "These data provide compelling and conclusive evidence of the strong attentuation effect of matrix diffusion on contaminant transport in the Chatsworth Formation at SSFL." DTSC does not agree with the terms "compelling and conclusive". The attentuation effect present in the data may be the result of other factors such as the presence of faults and fine-grained units across the interpreted groundwater flow path. Further characterization activities will be conducted to evaluate the effects of matrix diffusion at the site.

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36	09/01/11 Email	Christina Walsh	*8.5.2.2 modeling assessment does not adequately consider spatial regularity or size of significant faults and fractures that may serve as a preferential migration pathway that is currently unknown due to the limits in wells drilled at the site. It is impossible to overcome this unknown factor given the significance and extreme topographical variances across the site and the limited access to much of that area because of the rough terrain.*	DTSC stated in comments on the Groundwater Remedial Investigation Report, that, "The impact of numerous faults at the site on the groundwater flow and contaminant movement is not supported by site-specific field data and is oversimplified." Additional data will need to be collected on the faults and fractures which would address the concerns contained within this comment.
37	09/01/11 Email	Christina Walsh	*8.5.2.5 hydraulic conductivity tests have since been conducted that do show connection to outer well network areas ((IEL Fault area) to an area of extremely high contaminant concentrations that is not adequately addressed or characterized at potential depth given the drop in elevation immediately adjacent to this area.*	The faults and other potential pathways need additional consideration and this issue is contained in DTSC comments.
38	09/01/11 Email	Christina Walsh	*8.5.2.8 the issue of unsaturated zones become saturated due to rise in groundwater levels is not adequately addressed or presented in the report. This is of extreme concern to future solutions needed, and is of primary importance to properly dealing with new potential migration pathways as they become saturated with flow. The example shown does not adequately address the contour issues and why that might cause connection at lower depths to be missed and given the topographical contours that might preclude evidence at shallow zones.*	The need for further evaluation of the contaminant transport (i.e. direction and rate) was identified by DTSC and the evaluation presented in the Site-wide RI report was considered inadequate. Additional work will be required.
39	09/01/11 Email	Christina Walsh	*8.5.2.9 does not adequately address the fact that daughter products of TCE in the case of vinyl chloride is much more toxic than TCE and therefore potentially creates new problems along the degradation pathway.*	The degradation of TCE and its daughter products needs further evaluation.
40	09/01/11 Email	Christina Walsh	*8.5.2.11 Perchlorate was not adequately sampled for following extremely high results found in Dayton Canyon below Happy Valley (a designated point source area). Since it is very water soluble, and repeated testing was not done, it is not necessarily fair to make the conclusions stated in the report.*	The remaining perchlorate in soil and bedrock in Happy Valley is addressed in the Group 1A Surficial Media Report and associated DTSC comments. Groundwater data does not indicate that a perchlorate plume extends beyond the Happy Valley area but additional groundwater characterization activites are proposed in the Sitewide Groundwater Data Gap Sampling and Analysis Plan (SAP) to address groundwater flow in the area.
41	09/01/11 Email	Christina Walsh	*8.5.3.1 Linking Approach to estimate expected travel distance of plume front does not adequately consider all point sources, therefore distance estimates will be flawed and dispersion will be under-estimated. Considering migration of contaminants as seen at CTL III contradicts the data shown to support this issue.*	Comment noted. There is insufficient characterization of release locations to determine if these areas can and/or should be remediated. In general, the nature and extent of groundwater contamination from individual release locations/source areas have not been completed.
42	09/01/11 Email	Christina Walsh	*8.5.3.3 Overview of results for IEL area underestimates overall gradient and does not consider fluctuation in gradient and potential gaps and barriers that may further skew flow pathways. The strike and dip tilt and associated fractures and gaps are not adequately considered as initial flowpaths that may displace water BEFORE saturation or percolation can occur. This pathway potential is not discussed to the degree in may influence flow direction and pressure.*	DTSC is conducting a significant amount of work in this area to address the groundwater flow around and through the geologic structures.
43	09/01/11 Email	Christina Walsh	*8.5.3.4 Assumptions causing conservative estimates of transport distances in DFN Simulations:*	Comment noted. There is variability in groundwater flow and the way that contaminants were released. Both factors impact transport.
			1: this can have an opposite effect as well, where additional mixing further transports contaminants	
			2: Source applied over relatively large area along boundary and assumed constant for 20 years can have significantly altered effects considering the irregular release mechanisms that occurred (accidental releases, significant releases through major rocket test programs, and rainfall during operational periods that may have caused berm overflows that can significantly modify the source entry.	

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44	09/01/11 Email	Christina Walsh	*8.6.2 field study discussing the presence of 1,1 DCE at levels exceeding TCE may not adequately consider differences in operational activities such as the machine shop "washdown areas" that may compete as a secondary point source of different VOC constituents such as at the front gate and B1 areas both in close proximity of the leading edge of the offsite plume.*	Each of the source areas are going to be further evaluated which will help to addres this comment.
45	09/01/11 Email	Christina Walsh	*9.1 Consideration of onsite groundwater contaminant impacts: I believe there are still significant gaps to our understanding of flow paths and believe that they will not be understood until there is a willingness to consider potential impact of movement that may already have occurred. Because all fracture systems are not understood to the degree where transport assumptions can be made, I think that we should err on the side of caution instead of presuming that it probably didn't move. We should assume it did, and ask ourselves where we should look instead.*	Comment noted.
46	09/01/11 Email	Christina Walsh	*9.2 Seep datasets are not robust enough to draw conclusions from, specifically as it relates to timing and flow. Since this is the primary mechanism to determine the presence of offsite groundwater impacts, these seeps should be more thoroughly investigated using new monitoring techniques that are more likely to capture VOC presence before it volatilizes and vanishes.*	The Sitewide Groundwater Data Gap SAP proposes shallow monitoring wells at select seep/spring locations.
47	7/5/2011 email	Guy Ervin	*Two minor editorial comments:* *1) Page 2, 1st paragraph* *"A 42-acre portion of (Areas I & II) IS owned by the federal government…"* *2) Page 3, 4th arrow* *"Have the effects of the contaminants…"*	Comment noted.
48	7/5/2011 email	Guy Ervin	*Two apparent inconsistences:* *1) Page 3, 2nd column, third paragraph, second sentence* *I believe that format restrictions have been in place for a long time prohibiting on site access and use for drinking water* *2) Page 4, 1st column, second paragraph, second sentence* *" and therefore no off-site human health risks have been identified."* *This is not consistent with the first sentence of Page 3, second column, third paragraph.*	Comment noted. DTSC will forward these comments to the RPs.
49	07/06/2011 email	Cindy Mays	*Question on the groundwater - Has this groundwater gotten into the drinking water?*	Groundwater data collected to date indicate that the groundwater contamination is limited in extent and extends a 1,000 feet offsite to the northeast. The groundwater at the site and in the vicinity of the site is not being utilized for drinking water.
50	08/09/2011 email	Heidi Dauwalter	*Will all buyers of any homes build in Runkle Canyon be notified of the possibility that their potential house is being built on land which was cleaned up using standards from the 1950's?*	This comment is not related to the Sitewide Groundwater RI report. Please contact the City of Simi Valley regarding the Runkle Canyon property.
51	08/09/2011 email	Heidi Dauwalter	*The barrels which were found on the property and appeared to have been emptied of liquid have not been identified nor disclosed as to when they were emptied or what was in them. What was in them and where did it go?*	This comment is not related to the Sitewide Groundwater RI Report. The commentor should refer to the appropriate Group RCRA Facility Report for specific information on this issue.

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52	08/09/2011 email	Heidi Dauwalter	*Will the builder of the homes guarantee that medical treatment for any and all health issues related to perchlorate contamination which may crop up after families have been living in the homes after any length of time, be paid for by the builder?*	This comment is not related to the Sitewide Groundwater RI report. Please contact the City of Simi Valley regarding the Runkle Canyon property.
53	08/09/2011 email	Heidi Dauwalter	*Will the city of Simi Valley be able to wash their hands of any responsibility for claims relating to exposure to contaminants in the ground water on the Runkle Canyon property?*	This comment is not related to the Sitewide Groundwater RI report. Please contact the City of Simi Valley regarding the Runkle Canyon property.
54	08/09/2011 email	Heidi Dauwalter	*My husband, my son and I want to put our names on any list of concerned residents about the fact that the cleanup is being done to standards which are not sufficient to GUARANTEE the safety of the groundwater in the Runkle Canyon area including the surrounding neighborhoods. Our names are Michael Dauwalter, Heidi Dauwalter, and Ansel Dauwalter.*	DTSC maintains an e-mail list containing members of the public interested in receiving information regarding the investigation and cleanup of SSFL. The e-mail address we received with your comment has been added to our SSFL e-mail distribution list. If you would like additional e-mail addresses added to our list, please send them to Zenzi Poindexter at uzenzile.poindexter@dtsc.ca.gov.
55	08/13/2011 email	Abe Weitzberg	*I understand that DTSC agrees that the Draft Report represents a very large amount of data and analysis but that they will not approve it without additional work. Also, the RP's agree that there are data gaps, but that DTSC is of the opinion that the gaps are greater than stated by the RP's. That being said, I do not think I received an adequate response to my question about how much work needs to be done to fill the remaining data gaps and how long will it take* [sic]. *The fact that the schedule allows until 2014 does not mean that the work needed will take until 2014 to be done. The sufficiency of the time period will be determined by the amount of work to be done, not by the available time. For that reason I look forward to seeing DTSC's specific comments regarding the data gaps so that they may be reconciled with the opinions of the RP's. As stated by DTSC there will be*	In the review of the Draft RI Report, DTSC idenitifies additional data gaps. At this point, it is difficult to assess how long characterization will continue as the approach and scope of work needed to fill the identifed data gaps needs to be developed.
56	08/13/2011 email	Abe Weitzberg	*I hope that the negotiations and technical exchanges will be in a public forum. I am concerned from the public comments I heard at the meeting, that many in the public are unable to distinguish between groundwater and surface water and also are concerned about historical events rather that current on-site contaminants and their future migration pathways and rates. I would like to hear from DTSC what they believe will be sufficient data needed to address the remaining questions. DTSC stated that their preferred approach was to follow sources from the site rather than look for evidence at distant locations. I hope they will follow this approach and not*	The public will be included in the process as we move forward. All future work will be based on science and data collected to date.
57	08/13/2011 email	Abe Weitzberg	*I am also concerned about the expressed consideration of the SSFL groundwater as a source for drinking water and the application of any lowered EPA drinking water standards, as infinitum. Since cleaning up contaminants already diffused into the fractured matrix would take an inordinate amount of time, consideration of SSFL as a source of drinking water from any well that some future person might drill seems to be an*	Aquifer restoration is the goal when addressing groundwater contamination at all sites. During the remedial investigation phase, data needs to be collected so that all remedial alternatives can be evaluated and considered. It will be the responsibility of the RPs to demonstrate, if applicable, that aquifer restoration or drinking water standards cannot be met at the site.
58	08/23/2011 email	Mary E. Weisbrook Save Open Space (SOS)	*SOS will be addressing the Groundwater RI report in several letters. We feel that in the past our comments and issues have been ignored. Maybe this approach will work. By limiting our issues to a few per letter, maybe the appropriate actions by the responsible agencies will be taken so that an adequate RI Groundwater occurs which serves to protect public health and*	Comment noted.
59	08/23/2011 email	Mary E. Weisbrook (SOS)	*Laboratory Contaminants* *7-17 and 7-18: The groundwater characterization is inadequate because this RI has excluded what it calls laboratory contaminants: "Chemicals that are common laboratory contaminants (e.g. methylene chloride and bis (2-ethylhexyl)phthalate)…even if they had concentrations exceeding screening values...*	The DTSC assumes that all appropriate quality assurance/quality control (QA/QC) measures were taken during sampling and analysis of the samples. This would have included duplicates, field blanks, equipment blanks, and trip blanks in the field and standard QA/QC procedures in the laboratory. Proper data validation utilizing information from the appropriate QA/QC procedures are meant to uncover any sample contamination issues.

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			Methylene chloride and the phthalates including but not limited to bis (2-ethylhexyl)phthalate are not laboratory contaminates. The real truth is that: Methylene chloride and bis and other phthalates have been listed as Rocketdyne chemicals of concern since the historical beginningers of monitoring required for Rocketdyne constitutents. Methylene chloride and bis (2-ethylhexyl)phthalate are not lab contaminants and have been documented to be historically used at Rocketdyne. (See attachment) Also, DTSC letter of January 12, 2011 to Mr. Lenox (page 16) also questions the conclusion that these are lab contaminants.	
60	08/23/2011 email	Mary E. Weisbrook (SOS)	*Filtering Metals* *7-17: "For metals, only the dissolved (i.e. filtered) results were evaluated." Why did groundwater testing allow metals to be filtered? SOS has repeatedly asked that the total metals measurements be required and no dissolved metals (filtering) testing methodology be allowed. Even Boeing's own commissioned study's color graph shows that out of testing of 24 metals: 20 total metals (red bar graph) exceeded the mere 4 (blue bar graph) dissolved (filtered) in average metal concentrations. Total unfiltered metal concentration averages were greater than dissolved (filtered) metal concentration average in 20 out of 24 of the metal averages. (Attachment) Large differences in the average concentrations of total vs. dissolved concentrations are indicated for aluminum, chromium, copper, iron, and lead.* *There are also significant diiferences in rads when the filtering methodology is done. See Pajarito Canyon (June 2000) Alluvial Groundwater Sampling report on Nonfiltered (NF) vs. Filtered (F).* *SOS requests that that [sic] the groundwater RI report requires testing for total metals and does not allow dissolved (filtered) analyses for metals and rads. Filtered analysis falsely lowers the actual levels which doesn't adequately protect public health.*	The majority of the metals groundwater data from the site were collected using field filtering procedures. This filtered groundwater data, from the site, dates back to the mid-1980s and includes the majority of wells at the site. The resultant differences between screened and non-screened wells, shallow wells and deep wells, and wells screened within alluvium versus wells screened within sandstone result in artifactual variations in the solid materials contained in the samples collected from different wells and between samples collected within the same well at different times. This variability in composition and amount of solid materials in the water sample has a direct and significant effect on the reported concentrations. Under these conditions, field filtering of the groundwater samples is the most appropriate approach for meeting the data quality objectives for characterization. By minimizing these effects, the spatial and temporal relationships (i.e. the source zone locations) can be identified more accurately at the site. The DTSC-approved Sitewide Groundwater Water Quality Sampling Analyses and Plan dated December 2010 describes the procedures for sampling and analyzing groundwater samples for metals and radiological constituents. For metals, both filtered and non-filtered samples are collected and analyzed. Radiological samples are being collected in accordance with the procedures being used by US EPA in Area IV.
61	08/30/2011 email	Rocky Sawada	*Pls explain us about the health effect to the human body for short term and long term.*	Short-term adverse health effects result from acute exposures to chemicals, and symptoms can range from fairly benign (eg, temporary rash, blurred vision) to causing fatality (eg, inhalation of hydrogen sulfide gas). Acute exposures generally have an effect during or shortly following the exposure, or it could be a day, or may take multiple exposures over several days to develop. Long term, or chronic exposures, occur over months to years, typically involve lower doses than acute responses, and may result in effects ranging from subtle (eg, lowering of IQ or other behavioral changes in a child exposed to lead) to catastrophic (eg, liver cancer, teratogenic effects on newborns). Such symptoms make take years after exposure to appear.
62	08/30/2011 email	Rocky Sawada	*Also I would like to know the indication of contamination by comparing w/Chernobyl evacuating cases.*	This comment is not related to the Groundwater RI Report.
63	08/30/2011 email	Rocky Sawada	*Also I need to know how you publised these contamination data to people in LA not only nearby.*	The data is available to the public on on DTSC's SSFL website at http://dtsc.ca.gov/SiteCleanup/Santa_Susana_Field_Lab/index.cfm in the document library under the RCRA Facility Investigation - Groundwater section. We also distribute information to the community via our SSFL e-mail distribution list. Instructions to sign-up for our e-mail list are available on the website identified above. If you have additional questions or need assistance finding the information, please contact Zenzi Poindexter at uzenzile.poindexter@dtsc.ca.gov or by phone at (818) 717-6568

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64	08/30/2011 email	Rocky Sawada	*How much do you estimate for clean up and which area are you gonna clean up?*	The scope and size of remediation of the groundwater cannot be estimated until characterization is completed.
65	08/30/2011 email	Margery Brown	*I appreciate being able to comment on the draft RI report regarding groundwater beneath the Santa Susana Field Laboratory. However, it is difficult -impossible to appreciate the task of being asked to read and comment on such a giant-size file, with so many moving parts. One report I pulled up had 1000 pages or more, and was very quickly crossed off of my list, as even attempting to scan it soon proved to be frustrating and pointless. And so it went!*	Comment noted. The RI report is large and technical. The RI report, unfortunately, must be written to adequately present and support very technical issues. DTSC continues to look at ways to assist the public in reviewing these large technical documents. If you have any suggestions, please send them to Zenzi Poindexter at uzenzile.poindexter@dtsc.ca.gov.
66	08/30/2011 email	Margery Brown	*For one thing, each report presents a long list of new acronyms, not in ordinary usage, and never before encountered and memorized. This list is always to be found in the first few pages of the report…and, when one is puzzling over a new acronym on page 55 of the report. It is really time consuming challenge to have to flip back to the right page, go through the list, find the acronym and then flip back to page 55 again and continue reading. Too often, I have seen 4 or 5 acronyms being used in the same sentence, and while this is apparently a scientific necessity for geologists and hydrologists, it is totally confounding for an ordinary stakeholder who is not a scientist. Please do more to share your "language" with ordinary* *Not being anything even close to a computer "geek", I do not know if this is even possible, but I would like to suggest that a simple link, in blue, be installed, somewhere, on every single page, that would take the reader immediately back to the early page of acronyms...with one click...then back to the report... all done quickly and mechanically.*	DTSC will look into technical tools to better assist in the review of the Sitewide Groundwater RI Report and future documents.
67	08/30/2011 email	Margery Brown	*However, the main point is that these reports need to be summarized. In this case, even a 100 or 200 page summary would have been happily welcomed and greatly appreciated.* *I have the same kind of problem with the diagrams and charts…all too often, there is absolutely no legend or explanation of the meaning of the rows of figures.. Etc. These charts or diagrams may be fine for the experts, but they are not intelligible for an ordinary stakeholder. For me, it results in quickly deciding to totally skip that particular chart. At least, how about considering a written paragraph, down below the chart, explaining what it was about... the findings.. conlusions.. etc?...even just a few workds would help somewhat.*	Comment noted. DTSC staff are available to answer questions and assist in the review of technical reports.
68	08/30/2011 email	Margery Brown	*And, of course, my overall reluctance to spend any time on these reports centers around the fact that there is no way to get explanantion or ask questions about seemingly new planned procedures or findings, while one is reading the material..or even soon thereafter. I suppose that a diligenet reader should be making lists of questions, in the hope that there will be a relevant public meeting somewhere, sometime soon. Thank God for all of the meetings! However, by the time comments are due, I will have probaby lost interest in or focus on that particular question or problem, and/or I realize that I will undoubtedly just get the same stock answer that you tend to give to others with the same comment or question anyway.*	Comment noted. DTSC staff are available to answer questions and assist in the review of technical reports.
			I know that you are all scientisit, and,in preparing these reports, you have to do what your professional calls for…technical, complicated or not. You obviouslty cannot write the body of these reports for non-scientific stakeholders, and I know that it is MY problem if I only understand half of what I read...but please, find some time, or some way to SUMMARIZE there reports in language that we can at least semi-understand.	

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69	08/30/2011 email	Margery Brown	*I was gratefule for WATER U, but had to make note of the fact that the three professors, although certainly experts in their field, had been hired by Boeing. This inevitably leads up to some serious concerns that Boeing had been paying them huge sums to support their apparent efforts to minimize, if not completely avoid their cleanup responsiblilities of the contaminated*	Comment noted. DTSC is requiring thorough characterization and cleanup of the groundwater.
70	08/30/2011 email	Margery Brown	*a. The above concern was underlined and amplified by the professors' apparent conclusion the the [sic] groundwater was so hung up in the rock matrix that it could not or would not move anywhere. It is also noted, that this conclusion was stated at the end of the sixth session, when there was no more time for discussion of relevant issues.*	Comment noted.
71	08/30/2011 email	Margery Brown	*b. The implication of the contaminated ground water not moving off site seems to be that just monitoring it with a few wells, or perhaps pumping a treating a few places…should be sufficient for public health and safety. It is NOT sufficient…the contamination needs to be removed if at all possible, and whatever is left needs to be monitored, forever, lest it re-contaminate soil that has been treated or replaced with new and uncontaminated soil.*	Comment noted. After the groundwater is fully characterized, an analysis will be done to determine the best way to cleanup the groundwater contamination. Once the remedy is in place, monitoring will be required to ensure the cleanup goals for the site are being achieved.
72	08/30/2011 email	Margery Brown	*c. The assertion that contamination does NOT move through earthquake faults, is highly questionable…as per Dr. Yorem Cohen's and Dr. Ali Tabidian's reports in 2006. These experts have found that it does.*	The effects of faults on groundwater and contaminant transport are site-specific. Addtiional work will be conducted at the site to assess the nature of the faults and fault segments.
73	08/30/2011 email	Margery Brown	*d. The 3 professors seem to agree that contamination, probably TCE, is flowing out the front gate of the SSFL, but somehow, they still assert that contamination is NOT migrating off-site.*	This question seems to be related to comments were made at the Groundwater U rather than the discussion presented in the RI report. The Groundwater Remedial Investigation Report recognizes that a groundwater plume extends beyond the property boundary to the northeast.
74	08/30/2011 email	Margery Brown	*e. How about the fact that perchlorate has already migrated 1400 feet beneath the Simi Valley acquifer [sic], and is found in 1/3rd or 1/4th of Simi Wells? If the perchlorate gets pumped, will it not end up right in the acquifer [sic]?*	The pathways between the site and Simi Valley were evaluated through the collection of surface water, soil, and groundwater samples. A complete pathway from SSFL to the Simi Valley aquifer has not been found.
75	08/30/2011 email	Margery Brown	*f. How do the professors account for the fact that there is also a large plume of perchlorate in Danyon Canyon as well as TCE? Dayton Canyon being right next door to the Field Laboratory, it stands to reason that the contamination migrated from there. It seems that , APPARENTLY, not all of the contamination is just being held imobile [sic] by the SSFL rock matrix*	This question seemed related to comments made at the Groundwater U rather than the discussion presented in the RI report. DTSC is requiring full characterization of the groundwater.
76	08/30/2011 email	Margery Brown	*g. The location of seeps and springs seems to be a way of tracking contamination… and some seeps have recently been discovered in Bell Canyon which is right next door to the SSFL Southern border area.*	Comment noted.

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77	08/30/2011 email	Margery Brown	*h. Woolsey Canyon has had seeps and springs, and appears to be a pathway for contamination to flow down from the SSFL into the Chatsworth reservior. And why did the DWP close the reservior in the 70's when water storage capacity is so much needed by Los Angeles? Just beeing [sic] given a lame explanation of "earthquake damage" has never be sufficient or acceptable.*	The groundwater investigation is limited to the SSFL property with the exception of the known groundwater plume that extends off-site to the northeast. If DTSC finds additional evidence of off-site contamination extending from SSFL, DTSC will notify the community and require additional investigation to fully identify the extent of contamination. DTSC has not found any evidence that groundwater contamination beneath the SSFL property has impacted the Chatsworth Reservoir.
78	08/30/2011 email	Margery Brown	*i. Brandeis University became contaminated by being right next door to the field laboratory, and Rocketdyne-Boeing felt they had to buy some of the contaminated land from Brandeis. Since this is also a summer camp for children, one can only hope that no more contamination is flowing their way.*	Several groundwater monitoring wells and seeps are located in the North Buffer Zone and the American Jewish University aka Bradeis-Bardin property. These wells and seeps are monitored on a regular basis.
79	08/30/2011 email	Margery Brown	*j. TCE has been discovered in Sage Ranch.. Also right next door to the SSFL. It is obviously migrated there through fractures or earthquake faults.*	TCE has been found in the groundwater at Sage Ranch to the northeast of the property as noted. The groundwater flow and contaminant migration pathway are being evaluated.
80	08/30/2011 email	Margery Brown	*k. 4300 gallons of water a day are flowing thru train tunnel #26, and being dumped into LA City Park Chatsworth Park S and another 2900 a day, is being dewatered through the sump pumps…going out the N. end of the tunnel and being dumped near Simi Valley. This is all at the southern end of the Chatsworth formation, it has been going on for many years...there is an acquifer [sic] that got accidentally penetrated when the railroad tunnel was built... but, when is this water coming from? Perhaps from the Field Laboratory ?*	Pumping rates to the west of the tunnel are considered very small and generally insignificant when considering the overall groundwater storage in the area. These pumping rates will not have an impact on the SSFL groundwater plume. SSFL groundwater data indicated that high TCE concentrations (over 1,000 µg/L) greatly attenuate within a few thousand feet of the source areas to only low concentrations of TCE or to concentrations below detection limits in the northeastern-most wells. These wells, which are the closest to the tunnel, are still over 2-miles away. DTSC has groundwater monitoring wells installed between the SSFL property and the tunnel. The wells are located over 2 miles from the tunnel. Sampling results of these wells are non-detect.
81	08/30/2011 email	Margery Brown	*l. During a rain event, when the ground becomes saturated and the groundwater gets re-charged…how can it possibly all still get immobilized by being only in the matrix? Other scientists' reports indicate that the water does flow thru fractures and earthquake faults. Why is this not being considered as part of the fate and transport of the groundwater?*	Groundwater flow through the matrix and fractures is considered.
82	08/30/2011 email	Margery Brown	*2. All of the above comments spring from the Water U professors' assertion that the ground water up at the SSFL is not migrating off site because it is immobilized by being shunted into the rock matrix. How very convenient for*	Comment noted.
83	08/30/2011 email	Margery Brown	*a. There was no time for any other scientist to speak to the group and give information contrary to the above professional theory.*	This comment is not related to the Groundwater Remedial Investigation Report.
84	08/30/2011 email	Margery Brown	*b. There was time for a few specific questions, but no time for a more extended discussion of why contaminants were being found outside of the SSFL…i.e. Dayton Canyon, Sage Ranch, etc. Just Boeing pleasantly acquiescent of the fact that contamination is going out of the front gate of the SSFL is not sufficient or acceptable.*	Comment noted.
85	08/30/2011 email	Margery Brown	*c. Why were previous groundwater studies by UC professors.. Yoram Cohen, and Tom Harmon…and SSFL Advisory panel reports (funded by the State Legislature) by Dr. Howard Wilshire, Bill Bianchi and professor Ali*	The SSFL Advisory Panel reports have been reviewed by DTSC.
86	08/30/2011 email	Margery Brown	*Before this draft report is approved by the DTSC, all of the above experts should be presented to the stakeholders, since to a great extent, their findings indicate that the groundwater at the SSFL does indeed migrate, since only a small portion of it gets caught up in the matrix. All 5 of the above-named gentlemen should be allowed to debate the issues and present their findings. These experts are NOT indebted to Boeing in any way, and are therefore able to give all of us an INDEPENDENT point of view about the SSFL groundwater .* *The groundwater problem is absolutely one of the greatest possible importance to the health and welfare of neighboring citizens, and to the future use of the SSFL acres. Therefore, since we only have one point of view from the 3 Boeing-paid professors, I believe that more information from the 5 other experts, in person, should be considered to be MANDATORY, before any treatment decisions are made.*	The Groundwater RI is available to the public and DTSC welcomes comments from the individuals referred to in the comment. DTSC will consider any information or comments provided.

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			In conclusion, I strongly oppose Boeing's apparent attempt to walk away from the groundwater problem…to not clean it up, to contain it, or to prevent it from spreading. In short, Boeing's highly paid consultants' claim that the groundwater will not migrate is UNCONVINCING.. especially since it ALREADY HAS	
87	County of Ventura Public Works Agency Transportation internal memorandum	Behnam Emami to Laura Hocking	*The document does not cleary indicate the project's site specific or cumulative traffic impacts to the local roads and the County's Regional Road Network. Future environmental documents should address the project's site specific and cumulative adverse impacts on County roads near the project.*	Traffic impacts will be considered during the California Environmental Quality Act (CEQA) process.
88	County of Ventura Public Works Agency Transportation internal memorandum	Behnam Emami to Laura Hocking	*If the project generates significant traffic on local roads and the County's Regional Road Network, then a Traffic Impact Mitigation Fee (TIMF) will be due to the County and the City of Simi Valley. Future environmental documents should indicate the amount of traffic the project will generate so the TIMF may be calculated.*	Work conducted as part of the Groundwater RI is not expected to have any significant impact on local roads. Traffic considerations will be included in the CEQA process related to the overall site investigation and cleanup process.
89	County of Ventura Public Works Agency Transportation internal memorandum dated July 12, 2011	Behnam Emami to Laura Hocking	*If the project generates significant truck traffic on local roads and the County's Regional road Network, then the project proponent should submit a proposed truck route plan/map to the Transportation Department for review and approval. The Transportation Department will not allow/permit hauling on Black Canyon Road.*	Thank you for the information. A transportation plan will be included in the cleanup plans for the site. These plans will be available for public review and comment. DTSC will share this comment with the Site responsible parties.
90	County of Ventura Public Works Agency Transportation internal memorandum dated July 12, 2011	Behnam Emami to Laura Hocking	*Proper precautions shall be taken to protect all road facilities. If, in the opinion of the Transportation Department, any portion of a County road is damaged by the project's operations, then it shall be repaired in accordance with current standard construction details and/or in a manner acceptable to the Transportation Department.*	Comment noted.
91	Ventura County Watershed Protection District internal memorandum dated August 30, 2011	Tom Wolfington to Laura Hocking	*The Santa Susana Field Laboratory is traversed in part by the following District red line jurisdictional channels: Bell Canyon, Bell Canyon Tributary, and Burro Flats Canyon. The District evercises its permitting authority over any activities conducted within the beds, banks and overflow areas of jurisdictional red-line channels in accordance with Ordinance WP-1 enacted January 12, 2011. It is requested that all District red line channels near the area of proposed or continuing work be clearly mapped and identified. Where applicable, Watercourse or Encroachment Permit applications must be submitted to the District for any proposed work.*	Comment noted.

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92	Letter dated August 31, 2011	Committee to Bridge the Gap (CBG), Rocketdyne Cleanup Coalition (RCC), Physicians for Social Responsibility - Los Angeles (PSR-LA), and Southern California Federation of Scientists (SCFS)	*Boeing has a long history of resisting cleanup of SSFL and instead putting resources into lobbying to be relieved of its cleanup obligations, coupled with public relations efforts to support such lobbying. The groundwater reports are no exception.*	Comment noted.
93	Letter dated August 31, 2011	CBG, RCC, PSR-LA and SCFS	*As part of that PR campaign, the RPs - with unfortunate assistance from DTSC - convened a series of public sessions it called "Groundwater University" or "Groundwater U." The first three sessions were relatively benign and neutral, leading members of the public to think that the entire series was indeed a scholarly, scientific, and disinterested presentation on groundwater contamination issues by experts without an axe to grind. The last sessions, however, were by Boeing's paid consultants who put forward their arguments why their client should not be required to clean up the mess for which it is responsible.* *The event was put on by the RPs "with the cooperation of DTSC," which introduced each session. This created an unfortunate appearance of endorsement, despite some pro forma disclaimer, by the regulator of arguments by the RPs why they should be let off the hook.* *We repeatedly have requested that DTSC schedule an equal number of sessions, perhaps called "Groundwater U-2," to permit the public to hear the criticisms of the RP's claims by the independent scienitist who has previously reviewed and critiqued them. We have also requested that DTSC contract with those independent scientist to perform independent reviews of the most recent reports submitted by Boeing on these matters. We unfortuanately have not had any response to these requests, and we reiterate them here.* *The federal Agency for Toxic Substances and Disease Registry (ATSDR) contracted with a team from UCLA to perform detailed studies of the pollution from SSFL. That team, headed by Professor Yoram Cohen, reviewed, among other matters, the claims by the Boeing group that TCE and other contaminants in the groundwater were somehow held up in the rock matrix and would not migrate further. Work performed by the ATSDR ground, including actual empirical measurements by Professor Tom Harmon, now at UC Merced, disproved the Boeing claims.* *Simiarly, state legislators funded studies by the SSFL Advisory Panel that looked at other Boeing claims that have been repeated in most recent reports. Studies by Drs. Howard Wilshire, William Bianchi, and Ali Tabidian called into serious questions those claims as well.*	The public sessions were designed to educate the public and to assist in their review of the report. The report was written by the RPs so it is appropriate that they would present their own findings to the public. Their role as consultant and adovocates to the RPs was clearly stated throughout the sessions and seems unreasonable to assume that any of the attendees would be unaware of their biases. Further, DTSC held a public meeting during the public comment period for the Groundwater RI document to discuss DTSC's initial comments on the document. It should be noted that DTSC did not approve the Groundwater Sitewide Remedial Investigation Report. Further, all of the five independent scientists may have submitted written comments to DTSC on the report, which would have been posted along with these comments. DTSC is willing to review any future comments from these individuals and/or meet with them to discuss any comments they may have.

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			We repeat our request that, should DTSC decline to simply reject the Boeing groundwater investigation reports as we suggest, then it should contract with all five of the independent scientists mentioned above to review the full 2009 submissions by Boeing. It is inappropriate for DTSC to receive only the claims put forward by the RPs.	
94	Letter dated August 31, 2011	CBG, RCC, PSR-LA and SCFS	*FOOTNOTE 1: For reasons that are not clear to us, the reports sat for nearly two years before a public comment period was established.*	The document was available for review at the designated repositories and online at the beginning of 2010. This extended time of availability of this document was necessary to give the public and DTSC staff an opportunity to review the large, technical document.
95	Letter dated August 31, 2011	CBG, RCC, PSR-LA and SCFS	*FOOTNOTE 2: We understand that DTSC has contracted with Dr. Matthew Becker for a review. Without making any comment regarding Dr. Becker as an individual, this action is no substitute for contracting with truly independent scientists Drs. Cohen, Harmon, Wilshire, Bianchi, and Tabidian. Dr. Becker has received, with a colleague, in excess of half a million dollars from one of the RPs, DOE, in part for work on issues related to the matters at hand; he has received other significant funds from another RP, NASA; and he used to work for both DOE and NASA. All of this creates an appearance of a conflict of interest and lack of independence. Moreover, his participation as part of the Groundwater U team further creates an impression on the mind of many community members that he is "part of the RPs' team." It is thus critical that the five ATSDR and SSFLAP independent scientists identified above be asked to perform an independent review for DTSC and their conclusions presented to the public in a fashion to that of the original Groundwater U.*	The work conducted by Dr. Becker under the DOE grants was for the Environmental Remediation Sciences Program and Geothermal Technologies Program. Neither program has any association with SSFL, nuclear reactors, etc. During his sabbatical with NASA, he worked for the National Research Council, which is a program administered by the National Academy of Science. The grants were from NASA, so there was some salary directly from NASA. It should be noted that the funding received from Dr. Becker was from research grants, not contracts. Grants are awarded through a competitive peer review process. A panel of academics rank proposals according to their intellectual merit and their ability to address the requested area of research.
96	Letter dated August 31, 2011	CBG, RCC, PSR-LA and SCFS	*1. <u>Boeing asserts there is extremely little recharge of the contaminated aquifer</u> This is standard fare; polluters in areas like ours almost always argue that virtually no rainfall perchlorates into the groundwater, that almost all of it evaporates, runs off, or is transpired by vegetation. On top of these false assertions, they then homogenize the rainfall data and infiltration estimates, averaging over a year, when the infiltration is in fact episodic, occurring furing relatively infrequent rainfall events. The Boeing consultants pushed this to the extreme, trying to compare their claimed average recharge value at the site with the water a garden hose discharges. To make the claim of limited recharge, RPs often purport to rely on the "chloride mass balance" model. It is no surprise that the Boeing consultants would do the same. But, as Dr. Wilshire and Dr. Bianchi showed long ago regarding Ward Valley, the chloride mass balance technique doesn't work. Indeed, empirical evidence, both from Ward Valley and from Beatty, Nevada, showed that whereas the chloride mass balance model asserted that there was virtually no perchloration and recharge, actual measurements of contaminant migration demonstrated this was wrong. The Ward Valley proposed nuclear waste disposal facility was abandoned, in fact, when it was revealed that the scientist who had asserted, based on the chloride mass balance technique, that there would be essentially no recharge and migration had withheld measurements of actual contaminant migration far greater than the chloride technique presumed. The chloride mass balance techniques is based on a series of assumptions- such as uniform piston-flow movement and no preferential pathways- that are not disclosed in the Boeing reports and aren't met in the SSFL case.*	There are various methods for estimating recharge. As with all methods, the chloride mass balance approach has disadvantages and issues that need to be acknowledged. Recharge will be revisited as additional data is collected and the numerical model is refined.

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			Drs. Wilshire and Bianchi should be asked to provide in more detial explanations of why the recharge estimates by Boeing are erroneous.	
97	Letter dated August 31, 2011	CBG, RCC, PSR-LA and SCFS	*2. Boeing Asserts All of the Contamination is Caught Up in the Rock Matrix and Will Not Migrate* *Standard arguments by polluters revolve around claims that the pollution is largely immobilized in the geologic setting and won't migrate. The Boeing consultants assert that the TCE is hung up in micropores in the rock matrix. They have trouble explaining why the TCE migrated so far if, that is the case- more than 1400 feet down and thousands of feet laterally from the source areas, including to off the property. But they basically claim that won't happen any more. They argue the rock has absorbed the contamination like a sponge sucks up water and it will somehow stay in the sponge forever.* *Professor Harmon empiricaly tested their claim. He obtained samples of SSFL sandstone and attempted to get the TCE into the rock matirx; virtually none of it would enter the matrix. The factor Boeing assumed for TCE uptake into the matrix was off, he concluded, by a factor of 50, and the conclusion they reached was upside down. Most of the TCE was available for migration, he found.* *Again, this is the briefest of summaries. Professor Harmon's original work for ATSDR should be considered, and he and Professor Cohen should be asked to review Boeing's more recent reports.* *We note that Professor Harmon had predicted that, if measurements were made deeper into the profile, TCE would be found to have migrated quite deep. Now we know that is the case. Boeing concendes that TCE got 1400+ feet is below the Simi Valley floor, and this at the level of the Simi Valley aquifer. Were Boeing to not engage in pump-and-treat over the long term to create a cone of depression onsite to try to restrain further migration laterally, and were the Simi groundwater to have increased pumping, given water needs, that could lead to contamination from SSFL being sucked into the Simi aquifer. Indeed, it is not clear from the data that the lateral migration that has occurred hasn't been significantly restrained by the decades of onsite pumping rather than any purported magic rocks holding up the contamination, and abandoning control efforts can only make matters*	The overall fate and transport of contaminants at the site needs further evaluation through modeling and the collection of data.
98	Letter dated August 31, 2011	CBG, RCC, PSR-LA and SCFS	*Boeing Asserts Earthquake Faults and Fine-Grained Unit Block Contaminant Migration* *Dr. Wlishire's report for the SSFLAP raised serious questions about these claims, showing that in fact earthquake faults, for example, could facilitate contaminant migration. We won't attempt to summarize his full findings here; the reader is referred to Wilshire's original report.*	The effects of faults on groundwater and contaminant transport are site-specific. Addtiional work will be conducted at the site to assess the nature of the faults and fault segments at the site.
99	Letter dated August 31, 2011	CBG, RCC, PSR-LA and SCFS	*Boeing's consultants assert that Boeing should be allowed to walk away from the contamination for which it is responsible- no cleanup effort, no containment required in the interim. The arguments made claiming that the contamination won't migrate any further seem higly questionable. But even were that not the case, polluters shouldn't be allowed to pollute an aquifer and then avoid cleanup obligations by declaring the aquifer polluted and unusable. The SSFL aquifer is a beneficial water source and DTSC has an obligation to protect it and get it remediated.* *However, that contaminated groundwater is on top of a mountain, and gravity wants to have it move downhill, where the neighboring communities are. They should be protected too.*	Per the Consent Order, DTSC is requiring a full investigation and cleanup of the groundwater. The groundwater remedial investigation is part of this effort.

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			We recommend DTSC decline to approve the Boeing reports, and simply order the RPs to move forward on cleanup of the groundwater contamination, with containment efforts greatly enhanced in the meanwhile. Otherwise, at minimum, Drs. Cohen, Harmon, Wilshire, Bianchi and Tabidian should be contracted with to perform independenet reviews of the Boeing claims.	
100	Email 8/31/2011	William Preston Bowling Aerospace Contamination Museum of Education (ACME)	*There are many unaanswered questions regarding the potential for offsite migration of the contaminants found at the SSFL. In March of 2008, it was written that the "City of Los Angeles has lost the ability to pump 47 percent of it's wells in the SFB (San Ferando Basin)" due to "increased concentrations of primarily Trichloroethylene (TCE)"*	The San Fernando Basin has a known groundwater problem that is centered in the Burbank/Glendale area at the eastern portion of the San Fernando valley. The contamination found in the groundwater has been attributed to the plating and aerospace companies that operated in that portion of the valley. DTSC is not aware of any explicit or inferred connection made between these groundwater plumes and SSFL.
101	Email 8/31/2011	William Preston Bowling (ACME)	*TCE was detected in 355 of the 425 monitoring wells at the SSFL and an extensive offsite investigation is needed as an addendum to this document. Other pathways of offsite groundwater exist with faults and structures that include the Burro Flats Fault as illustrated above in the Thomas Dibblee Geology Map. The fault intersects the SSFL and takes it offsite in two directions, East into the Chatsworth Reservior and West into Runkle Canyon. With the developmenet of the Sodium Reactor Experiment, the pathway into the reservior was considered in the 1954 Preliminary Safety Evaluation...*	The need for additonal characterization is addressed in DTSC's comments on the Sitewide RI Report. Characterization activities are conducted from release locations outward. If these activities indicate that offsite work is needed then DTSC will direct the RPs to conduct the appropriate work.
102	Email 8/31/2011	William Preston Bowling (ACME)	*No studies have been done to the West, yet contamination has been found in groundwater in Simi Valley and the Windmill Well in Runkle Canyon*	The concentrations detected in the "Windmill well" have been sporadic and near detection limits. The source of the detections are suspect and may be related to maintenance at the well rather than a release from the site. However, the RI report must define the nature and extent of contamination at the site. Once completed, more definitive statements can be made regarding the occurence of these detections.
103	Email 8/31/2011	William Preston Bowling (ACME)	*There is a known TCE plume (shown above) migrating in the direction of the estimated 70 deep-draw down wells actively pumping 24/7 and releasing untreated groundwater from the Chatsworth Train Tunnel No. 26 (Shown Below)*	Pumping at rates of 5 gallons per minute (gpm) discharge to the east and 2 gpm to the west at the tunnel is considered very small and generally insignificant when consideringthe overall groundwater storage in the area. These pumping rates will not have an impact on the SSFL groundwater plume.
			Every day 4300 Gallons are released into the Chatsworth Park South Watershed and then into the Los Angeles River. An additional 4600 gallons per day are released into Simi Valley through the other end of the tunnel, these pumps are running 24 hours a day.	SSFL groundwater data indicated that high TCE concentrations (over 1,000 µg/L) greatly attenuate within a few thousand feet of the source areas to only low concentrations of TCE or to concentrations below detection limits in the northeastern-most wells. These wells, which are the closest to the tunnel, are still over 2-miles away. DTSC has groundwater monitoring wells installed between the SSFL property and the tunnel. The wells are located over 2 miles from the tunnel. Sampling results of these wells arenon-detect.
			In the year 2001, SSFL co-owners NASA and The Boeing Company turn off their groundwater "Pump and Treat" systems. In the same year these 70 deep-sump dewatering devices were installed inside the Chatsworth Train Tunnel no. 26. These draw thousands of gallons of groundwater on a 24 hour a day schedule and dump it into the Los Angeles River via a drainage system in Chatsworth Park South. This pumped groundwater meets the Los Angeles River via Santa Susana Creek coming from Chatsworth Park South storm drainage systems. With the Boeing and NASA systems offline, these 70 tunnel pumps could be drawing contaminated water further offsite than we are confortable with or have previously known.	The term "deep-draw down wells" is a relative term. It should be clearly noted that these are sumps that are only approximately 4-feet deep and/or designed to remove water from the sub-base of the tunnel. Aquifer test data and laboratory test data from the Chatsworth Formation indicate a relatively low transmissive aquifer. As a result, the dewatering sumps do not have to pump a significant amount of water to draw water down the few feet of subsurface water within tunnel. This is further supported by the low pump rates. We would expect that the area influenced by this pumping may only be a short distance from the tunnel.
			Another problem we have is the "Subsidence" of groundwater during extraction.	In addition, this position assumes continuity of the aquifer from SSFL to the tunnel (approximately 2 miles). There is no evidence to support such continuity exists or that the Shear Zone or any other fault provides such a hydraulic connectivity.
			Keep in mind the 24 hours a day of sump-pumping extracting a large quantity of water from an unconsolidated aquifer.	Subsidence due to groundwater extraction is not an issue in consolidated materials such as sandstone. Incidences of groundwater subsidence due to groundwater extraction occur in basins with thick sequences of unconsolidated materials where groundwater withdraw was significant.

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			The anisotropy that we see here is consistent with discussions as presented by The Boeing Company on the "Shear Zone" and it's effects on the groundwater movement.	DTSC is not clear regarding the statement on anisotropy. The aquifer at SSFL is anisotropic and that is acknowledged and accounted for.
104	Email 8/31/2011	William Preston Bowling (ACME)	*The ilustration to the left above represents the groundwater flow of the San Fernando Basin that clearly starts near the SSFL and takes a path following the Los Angeles River into Long Beach. The map to the upper right is the Runkle Canyon "Windmill Well" despite being a few hills away has detected TCE in several tests. This well is the headwaters to the Ahmanson Ranch Watershed, TCE and Perchorate were found in this watershed that prompted a cease of their development plan [sic].*	The concentrations detected in the "Windmill Well" have been sporadic and near detection limits. The source of the detections are suspect and may be related to maintenance at the well rather than a release from the site. However, the RI report must define the nature and extent of contamination at the site.
105	08/31/2011 email	Mary E. Weisbrook Save Open Space (SOS)	*Operable unit Figure 1-3 portrays that there is no connection/continuity between the near surface groundwater and the Chatsworth Formation groundwater. We have pointed this out in the past and request that his inadequate diangram be replaced by a diagram which doesn't preclude a true characterization of the majority of SSFL groundwater movement: there is interconnectivity between the Shallow Zone aquifer and the Chatsworth Formation groundwater.* *A local geologist pointed this out in an email to Buck King on December 4, 2009 with his comments on this same figure when it was part of the power point on page 10 in the Group 3 Remedial Investigation Report. According to Geologist Thomas Slosson: "The Chatsworth Formation is highly jointed and fractured, and as such it does have secondary permeablility and porosity that is much higher that the formation primary permeability and porosity. Due to this fact it is hard to believe tha the water from the ponds and the surface flow would become perched on top of the weathered bedrock as depicted. It is more likely that there is no perching of the near surface groundwater, and that the water which infiltrates into the ground from the surface and ponds does in fact continue to migrate downwards to the Chatsworth Formation water table. For observing the Chatsworth Formation materials near the site, and in the 118 freeway road cuts, it is observable that these joints and fractures do allow the downward movement of water and are interconnected. The iron oxide staining in the joints and fractures which have been observed are indicative of water movement along these joints and fractures."* *Geologist Slosson continues: "Given the amount of ponds on the site during its use, and the surface drainage to these ponds, it is very likely that there was a large amount of water which infiltrated into the ground and would continue on to the deeper groundwater, I do not believe that's the ponds were lined with an impermeable or liner, especially in the early days of the site. As such, there again should be the consideration that there was a very high potential for near surface groundwater or water which infiltrated into the near surface, especially in the holding ponds, to infiltrate into the deeper Chatsworth Formation Operable Unit along the many open and connected joints and fractures." (Thomas Slosson, P.G. #4204, C.E.G.#1327)*	It is correct that Figure 1-3 portrays no connection/continuity between the groundwater in the Surficial Media Operable Unit and the groundwater in the Chatsworth Formation Operable Unit. As the comment points out, Chatsworth Formation groundwater, where high enough, is present in the weathered bedrock and alluivium. DTSC acknowledges that the figure is a simplified representation of the groundwater but the intent of the figure was to depict the operable units rather than the occurence of groundwater. **N**o changes are necessary as a fuller description of the groundwater is presented throughout the report which addresses this concern. In regards to the comments by Mr. Slosson, groundwater data indicates the occurence of perched groundwater at the site which indicates that the contrast on hydraulic conductivities between the alluvium, weathered bedrock, and unweathered bedrock is sufficient to create perched conditions, at least temporally. In regards to infiltration, DTSC would agree the significant infiltration occurred in the drainages and in the unlined ponds. The RI report does not dispute this.

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			In addition, the EPA (EPA ID #CAD093365435, CAD1800090010, CA3890090001) discussion on groundwater (section 3.4) stated: "The occurrence and movement of groundwater in the Chatsworth Formation is controlled by a well-developed system of fractures and joints. In some area of the facility,the two groundwater systems appear to be hydraulically interconnected. In other areas, however, the Shallow Zone aquifer is separate and distinct from the Chatsworth Formation as evidenced by the vastly different water level elevations and contaminant concentrations. In these areas, however, it is still likely tha the Shallow Zone transmits groundwater and contaminants to the underlying fractured Chatsworth Formation." *Groundwater Resources Consultants, Inc. in its reports also states that: "Downward vertical movement of the Shallow Zone groundwater groundwater [sic] into the fractures in the Chatsworth Formation also occurs."*	
106	08/31/2011 email	Mary E. Weisbrook Save Open Space (SOS)	*Please add the DTSC Diagram for off site Assessment which is a true picture of groundwater migration off site at SSFL. Unfortunately, in this RI report site conceptual model is grossly inadequate [sic]. This RI report concludes that transport of contaminants in the groundwater indicates that nearly all the contaminate mass remains in the rock where contaminates entered the subsurface decades ago. (1-4) Chatsworth Formoation groundwater, the principles of gravity, and the iron stained Chatsworth Formation cuts on the 118. The site conceptual model is inadequate in that it ignores the permeable fractues and faults which act as pathways moving the contaminants by gravity to the surrounding low lands below the SSFL Mountain.*	The diagram referred to shows conceptually, groundwater and surface water movement and potential transport pathways. DTSC would disagree that the report site conceptual model is grossly inadequate. Rather, the model is not sufficiently supported. It remains to be determined how accurate the RI report site conceptual model is. See DTSC's comments on the various data gaps that were identified in the report and conceptual model at: http://www.dtsc-ssfl.com/files/lib_rcra_groundwater/SWGWRIR/correspondence/65197_Final_Transmittal_12212011_RI_Report_w-attachment.pdf
107	08/31/2011 email	Mary E. Weisbrook Save Open Space (SOS)	*The conclusions at the end of this report ignore the findings of Rocketdyne contaminant fingerprints found in the surrounding lowlands. Prohibition of groundwater use within 4 miles of SSFL for drinking water is needed now to adequately protect human health and welfare. There are two SImi Valley ground water wells within 4 miles of SSFL Mountain that are currently being used for drinking water.* *The Burros Flats Fault and Happy Valley Fault effects were not included in the data (6-56) :Other areas of deep groundwater occur along mountain-top margins underlain by steep hydraulic gradient toward the surrounding lowlands." (6-35). The faults are conduits to the groundwater flow. There was not evidence that the Woolsey Canyon Fault, Burro Flats Fault, Coca Fault and the Happy Valley Fault blocked groundwater flow. Also, there are "Groundwater mounded by recharge across SSFL and adjacent uplands moves toward pumping wells, hill-slope and canyon floor seep, and the subsurface of surrounding lowlands." (6-36) Past groundwater test results in the surrounding lowlands below SSFL need to be considered. Rocketdyne contaminate fingerprints have been found and documented. The DTSC Groundwater Model is the best to demonstrate the true picture.*	DTSC assumes that "contaminant fingerprints" refer to the occurrence of perchlorate detections in Simi Valley, Dayton Canyon, and Ahmanson Ranch. All occurences were evaluated and transport pathways from SSFL were tested. No complete pathways were identified. Further work is being conducted at the release locations to better assess potential onsite and offsite pathways. Association of these offsite detections of perchlorate with SSFL activities is currently not supported. Further work assessing the nature of the faults and their effects on the movement of contaminants will be conducted.